

NC STATE BUILDING CODE REVIEW OF VOLUME I-C 1999 Edition

March 1, 2000

INTRODUCTION

The following is a review of the 1999 Edition of the North Carolina State Building Code, Volume I-C - Accessibility Code, prepared with consideration for the concerns of NC architects.

Effective this past July 1, the 1999 Edition (big book) superseded the older 1991 Edition as Amended (small book) for all new construction.

Because of major differences in the two editions, architects have found themselves having to meet code requirements that now also incorporate provisions of federal and state civil rights laws. Furthermore, architects are now being subjected to significantly different responsibilities toward those laws as a result of their incorporation into the code.

The purpose of this review is to provide architect who are designing new buildings and other facilities in North Carolina with a comparative guide to some of the important differences between the earlier edition and the new. Every effort has been made, within necessary constraints of time and money, to identify issues that may be important to a successful project.

Understandably, a review of this sort cannot and does not carry the force of law, as does the building code. Therefore, although persons obtaining this document directly from A/E/C Support Services are entitled to use the report for their own purposes in discussing code issues with authorities, it is essential to verify with appropriate authorities the validity of applying the report information to specific projects.

The report was prepared by A/E/C Support Services, Raleigh, NC, under a commission from the Engineering & Building Standards Department of Mecklenburg County. Appreciation is expressed to many other architects and code officials who contributed comments and recommendations.

EXECUTIVE SUMMARY

Clearly, there are many architects who will not easily be able to invest the time to wade through all 678 pages of the new Volume I-C book to insure that their projects are in full compliance.

Therefore this report starts with a list of several provisions in the new edition that seem most likely to be subject to misunderstanding.

1. Although the new edition incorporates provisions of the Americans with Disabilities Act, some actual Volume I-C provisions may in fact be different from ADA. For example, there is a disagreement in Paragraph 11.6.1 between Volume I-C and the ADA regarding height of a barrier free toilet seat. And there are others.

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2. For example, another disagreement between Volume I-C and ADA occurs in the interpretation of accessible means of egress requirements. The Volume I-C requirements in Paragraph 6.3.1 appear to conflict with ADA and appear to exceed ADA requirements as well.
3. Although the new edition incorporates provisions of both the Federal and NC Fair Housing Act, these provisions may be applied differently for Code purposes than the same provisions as applied to civil rights. A copy of the October 1999 interpretation by the NCDOT Engineering Division of Fair Housing Act applicability is appended to this report for the reader's information.
4. Understanding the new requirements for Areas of Rescue Assistance in Paragraph 6.3.2 has been troublesome for many architects. Basically, areas of rescue assistance must be provided whenever required exit facilities are inaccessible, except for buildings with supervised sprinkler systems, Institutional Restrained inmate housing areas, and exterior facilities such as open parking garages.
5. Handrail requirements have been extensively revised. Height minimums and maximums for ramps and stairs have been raised 4 inches. The old requirement was 30 inches minimum, 34 inches maximum. The new requirement is 34 inches minimum, 38 inches maximum.

In some cases, ramp handrails are no longer required, as in the case of a ramp no longer than 72 inches with a rise of not more than 6 inches.

* Minimum width between stair railings is now 48 inches clear for stairs serving areas of rescue assistance.
6. Several provisions scattered throughout Volume I-C require that some facilities be designed for future barrier-free adaptability, even though full accessibility is not required at the time of initial occupancy. An example would be the requirement that private toilet rooms and showers, such as those serving individual offices, must be constructed for future accessibility, including installation of blocking and wall reinforcing to support future handrails and other required equipment.
7. Requirements for elevators have changed. Under the new edition, almost every type of publicly owned building that is 2 stories or more in height must have an elevator. This also applies to privately owned buildings that provide mercantile, health care, or other services to the general public.
8. Many very specific requirements for the design, location and installation of signage have been added in Chapter 18.
9. There can be significant differences between the use of terms in Volume I and volume I-C. For example, a building subdivided by firewalls is considered to consist of separate buildings under Volume I, but is considered to be a single building under Volume I-C.

Hopefully, the above list will serve to provide at least a summary acquaintance with some of the many changes in Volume I-C. For a much more detailed review, keep reading. The remainder of this review is arranged on a chapter by chapter basis and includes chapter and paragraph references to make it easier to match comments to the text of the code itself. Paragraph and page references in the report should be assumed to refer to Volume I-C only. References to other volumes will include complete references, e.g. **Volume XX, Paragraph 1.1.1 (a)**. * Final revisions, such as this one, are marked with an asterisk (*).

VOLUME I-C REVIEW

The important thing to remember when looking through the 1999 edition of Volume I-C (Accessibility) of the North Carolina State Building (NCSBC) code is **DON'T PANIC!**

The new accessibility code looks more complicated than it is, because it incorporates not only the prescriptive text of the earlier NC code, but also a great many illustrations, and additional annotations about other similar regulations that may apply to a building. The text also incorporates applicable regulations of some civil rights legislation, most notably those regulations associated with the Americans with Disabilities Act of 1990 (ADA) and the NC Fair Housing Act (FHA), which applies to residential occupancies with more than 4 units.

So... When is a building code not a building code? If anybody is confused about the contents of Part III: Appendices for Alterations, and Part IV: Appendix for Historic Preservation, don't feel too weird. There appears to be some question of enforceability about these provisions. The best understanding at this time is that Part III and Part IV are not mandatory or enforceable, but may be applied as guidelines by the building official having local jurisdiction over the project.

Other more conventional appendices are found in Part V, and consist principally of excerpts from legislation underlying the accessibility code and other related matters.

PART I: TITLE, SCOPE AND DEFINITIONS

Chapter 1 - Applicability

It is reasonable to assume that all new construction is required to comply with Volume I-C, including significant additions to existing buildings, and temporary facilities such as bleachers or reviewing stands. A description of building occupancy types and arrangements subject to the accessibility code is included on pages 1- 16. These should be carefully reviewed; there may be surprises. Consult with the building official having jurisdiction for any building types not indicated.

* Unlike ADA and previous editions of the accessibility codes, churches, synagogues and similar religious buildings are not exempted from accessibility requirements.
(Paragraph 1.2.3) (NC DOI, Laurel Wright, 2/4/00)

* The accessibility code also applies to single story privately owned townhouses.
(Paragraph 1.2.9.3) (NC DOI, Laurel Wright, 2/4/00)

* The application of the term "Temporary Structures" may be broader than might be expected. (Paragraph 1.2.10)

Alterations to existing buildings may or may not be required to be fully accessible, depending on the nature of existing construction, the proposed scope of alteration work, and the policy of the building officials having jurisdiction. Be sure to check the definition of "alterations" in Paragraph 2.2.7. Other specific requirements for barrier free alterations are included in **Part III: Appendices for Alterations**, beginning at **Chapter 33**.

For building developers doing renovation work, there is important information about landlord/tenant responsibilities included in **Paragraph 34.2.4**.

In general, the provisions of Volume I-C do not apply to individual private residences, unless there is a "Place of Public Accommodation" or a "Commercial Facility" located

within the residences. **Section 1.4** establishes requirements for these types of facilities when located in a private residence.

"Places of Public Accommodation" can include stores, food service, schooling facilities, daycare centers, exercise facilities and homeless shelters, among MANY others. Make sure to check the definitions included in **Paragraph 1.4.2.**

Paragraphs 1.4.1 and 1.4.4 appear to have the same intent, and much of the same text. It's not clear from the text whether the latter paragraph establishes minimums or limitations on compliance.

There are other exceptions:

Paragraph 1.2.6.3.1 includes an exception for certain storage occupancies with mercantile attachments in "coastal high-hazard areas."

Paragraph 1.2.11.1 includes an exemption for temporary construction-related facilities such as scaffolding, field offices and storage sheds.

Other temporary construction, such as mobile classrooms, reviewing stands, bleachers and enclosed protective pedestrian passageways at construction sites are NOT exempted.

Paragraph 1.2.11.2 (1) includes an exemption for "raised areas used primarily for purposes of security or life safety," such as guard towers, lifeguard stands, fire towers and similar construction.

Paragraph 1.2.11.2 (2) includes an exemption for "non-occupiable spaces" such as utility tunnels, freight elevators, elevator pits and penthouses, pump rooms, transformer vaults and similar facilities.

This DOES NOT include spaces such as electrical and mechanical equipment rooms subject to occupancy by service/repair personnel, which are considered to be employee work areas.

Paragraph 1.2.11.2 (3) includes an exemption for "single occupancy structures" such as tollbooths and parking lot booths that must be accessed from underground tunnels or raised walkways.

Similar structures that are accessed from grade or "standard curb height" are NOT exempted.

Paragraph 1.2.12 requires that entry/egress access must be provided to employee work areas, but includes an exemption from maneuvering space requirements, and clarifies that this exemption includes knee space, toe space, and similar clearances for racks, shelving and counters in the area.

This exemption applies to such diverse areas as individual offices, group offices, storage rooms, supply closets, mailrooms, staff workrooms, and mechanical/electrical rooms. There's an illustration included on **page 9.**

Fire walls and Mixed Use Occupancies are treated very differently by Volume I-C as compared to Volume I (General Construction).

Paragraph 1.3.3.2 explains that unlike provisions of Volume 1, the existence of one or more firewalls in a structure does not imply the existence of more than one building. The construction is considered to be a single building for accessibility requirements.

Paragraph 1.3.3.3 explains that when a single building contains multiple uses or occupancies, or multiple tenants for the same use or occupancy, each tenant space must be made individually accessible, regardless of whether the building is considered to be a single building or single occupancy by Volume 1.

Chapter 2 - Definitions

Unlike many "Definitions" documents, this one is probably worth reading. Anybody used to the ADA Accessibility Guidelines (ADAAG) will be generally familiar with most of the included terms.

The term "Area of Rescue Assistance" has been introduced from the ADAAG, and has some major consequences in the new edition of Volume I-C. Look at **Paragraph 6.3.2** for information about the details of providing areas of rescue assistance.

* The term "**Area of Primary Function**" has likewise been introduced with this edition of Volume I-C. The definition given for this term is "a major activity for which the building or facility is intended." This is not a particularly helpful definition since it could be interpreted to apply to almost any space in any building. It seems to apply principally to **Part III - Appendices for Alterations**. There are helpful examples included in **Paragraph 34.2.2.1**.

Several terms that are important to altering buildings are not defined in Chapter 2. Some of these are located as follows:

Maximum Extent Feasible.....	Paragraph 34.1.1
Technically Infeasible	Paragraph 34.1.2
Path of Travel.....	Paragraph 34.2.3
Disproportionality	Paragraph 34.2.5

PART II: NEW CONSTRUCTION

Chapter 3 - Site Access

Anyone generally familiar with the previous edition of Volume I-C and with the requirements of the ADA should have no problem with this chapter. However requirements are now considerably more detailed than in the previous edition.

A few highlights:

Paragraph 3.1 (1): Accessible walkways may not have abrupt level changes greater than 1/4 inch without transitional sloping. For level changes between 1/4 inch and 1/2 inch, the transition may slope up to 1:2 (50 percent). For level changes greater than 1/2 inch, the transition slope may not exceed 1:12 (8 percent).

Paragraph 3.3.2: Accessible walkways may not exceed 1:12 (8 percent) in slope. Walkways sloped more steeply than 1:20 (5 percent) must comply with requirements for ramps, including installation of railings.

Paragraph 3.3.4: Where accessible walkways are narrower than 60 inches, passing spaces 60 inches long and 60 inches wide must be provided at intervals not greater than 200 feet. A properly arranged T-turn intersection with another walkway is an acceptable passing space.

*** Paragraph 3.3.6:** Gratings in accessible pedestrian areas are limited to openings of 1/2 inch maximum width. Linear or elongated openings must be oriented in a direction perpendicular to the path of travel.

** Notes from a workshop conducted by Laurel Wright of NC DOI on 2/4/00:*

** The nature of required accessible routes from public ways to specific buildings may be affected by the use of the building and the way people normally get to the building. In the case of a building which does not directly serve the general public, and for which vehicles are the common method for reaching the building, it may be sufficient to provide for accessibility only from vehicular parking areas.*

** On the other hand, if people would normally approach the building from a nearby sidewalk or other public way, an accessible route to the building from the sidewalk may be required even though there is also an accessible route from vehicle parking areas.*

Chapter 4 - Parking Lots, Curb Cuts/Ramps, and Passenger Loading Zones

This chapter is considerably more extensive than the earlier edition. In addition to requirements which have not changed, such as minimum numbers of spaces (**Section 4.2**), signage (**Paragraph 4.1.2**), and parking space dimensions (**Section 4.4**), it now includes the following:

Paragraph 4.2.2: Requirements for van accessible spaces.

Paragraph 4.2.3: Marking or other delineation of parking space access aisles.

Paragraph 4.3.3: Accessible spaces in automobile/motor vehicle showrooms.

Paragraph 4.4.4: Parked vehicle overhangs at curbs and wheelstops.

Paragraph 4.4.5: Size and minimum overhead clearances for van accessible spaces.

*** Paragraph 4.5.2:** Distribution of accessible parking spaces in parking decks.

Paragraph 4.6.1: Parking space distribution, crosswalks, and maximum distance of travel from accessible parking spaces to accessible entrances. *(Maximum travel distance may not exceed 200 feet.)* Where sheltered spaces are provided a proportional number must be accessible.

Paragraph 4.6.2.1: *Where multiple parking lots serve specific buildings, any required accessible parking spaces in remote lots may be redistributed into parking lots adjacent to the buildings served.*

There may be some uncertainty about the term "remote lots," as used in this paragraph. In any event, if you wish to use this provision, a plan showing all parking lots and buildings involved must be submitted to the jurisdiction local to the project.

The maximum slope requirement for accessible parking spaces is unchanged at 1/4 inch per foot (2 percent) in any direction. This requirement is extended to parking access aisles (**Paragraph 4.5.2**), as well as vehicle pull-up areas and passenger loading zones (**Paragraph 4.11.3**).

Signage requirements for accessible parking spaces are not very clear in the text of **Paragraph 4.1.2**, which points to several appendices which are also not very clear or helpful. Instead of reading all that text, look at the illustrations on page 38. Note that the required height of the signs may depend on where the sign is located relative to pedestrian traffic patterns.

* Also note that the maximum penalty amount on sign R7-8D has been changed by the Legislature from \$100 to \$250. (NC DOI, Laurel Wright, 2/4/00)

Curb cuts and curb ramps are now treated separately from other ramps, and in much greater detail. Refer to **Section 4.7** for curb cuts and curb ramps. There are 8 pages of details for standard curb cuts and curb ramps, starting at page 51. Other ramps are dealt with in **Chapter 5**.

Walkways at raised traffic islands are shown in **Section 4.10**.

Passenger loading zone arrangements are shown in **Section 4.11**.

Details showing slopes, curb cuts and overhead clearance requirements are provided on **pages 63 - 66**.

Requirements for loading zone identification signs are shown in **Paragraph 4.11.5**. The bottom of these signs must be set at 84 inches above grade.

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Chapter 5 - Ramps

This chapter has been reorganized, but essentially includes the same requirements as the earlier code, explained in much greater detail. Instead of the 11 small pages of illustrations, there are now 17 larger pages of much more detailed illustrations.

Handrail height minimums and maximums have been raised 4 inches. Old requirement was 30 inches minimum, 34 inches maximum. New requirement is 34 inches minimum, 38 inches maximum.

Steel pipe handrails are now explicitly defined by inside pipe diameters, resolving a long-standing conflict between regulated pipe sizes and physical pipe diameters. However, the provisions of Volume I and Volume I-C may not agree. Be sure to check handrail diameters with the building official having jurisdiction over your project.

Offset dimensions and minimum clearances including minimum clear widths of ramps are still defined relative to exterior handrail surfaces.

Provisions for ramp edge protections have changed drastically. Under the earlier code an edge drop-off was defined as a 2 inch or greater difference in surface elevation between the ramp surface and adjacent surfaces. Under the new code, an edge drop

off is defined as a difference in elevation of more than 1/2 inch, or an adjacent flared surface sloped greater than 1:12.

There are some minor differences in the way ramp handrails are treated, especially rail extensions where ramps intersect corridors at right angles (**illustration on page 84**), and railings mounted in wall recesses (**illustration on page 87**).

In some cases, ramp handrails are no longer required, as in the case of a ramp no longer than 72 inches with a rise of not more than 6 inches.

Chapter 6 - Entrances and Means of Egress

This chapter is a complete rewrite of the earlier edition. However, most of the changes will be familiar to people used to the ADA.

How many building entrances must be made accessible? The short answer is that at least 50 percent of all public entrances must be accessible, and the number of accessible entrances must be equal to or greater than the number of required exits. Where there are fewer entrances than there are required exits, all entrances must be made accessible.

Paragraph 6.1.5 clarifies that entrance accessibility can be provided by mechanical lifts as well fixed site elements such as ramps and bridges.

Paragraph 6.2.1.3 requires that at least one accessible entrance must be provided into each tenant space, including each store opening into a mall. This appears to mean that stores using rolling or coiling security grilles as storefront closures must also provide a separate accessible entrance for employees and other people who might be in the store area after the grille is closed.

In the case of stores serviced through the storefront with no rear service access, this would appear to require an accessible entrance in the storefront itself that can be used when the security grille is closed.

Paragraph 6.2.3 requires that routes leading to inaccessible entrances be signed with directions to the nearest accessible entrance.

One of the more complicated of the new provisions is **Section 6.3**, which establishes requirements for "**accessible means of egress**" including "**areas of rescue assistance.**"

Paragraph 6.3.1 requires that all "means of egress" be accessible at the level of discharge. The language of the paragraph implies that ALL means of exiting the building must be accessible, not just the exits required by the egress provisions of NCSBC Volume 1 - General Construction.

However, the illustrations shown on **pages 103 and 104** only indicate what appear to be entrances and required means of egress. This appears to be in conflict with and exceed ADA requirements. These provisions are subject to ongoing clarification and interpretation by state building code officials, so watch this spot for updates.

Paragraph 6.3.2 incorporates extensive requirements for areas of rescue assistance. This report is not intended to restate the provisions of the code, however here's a summary:

There seems to be confusion about determining when areas of rescue are required. This is defined in **Paragraph 6.3.2.1.1**, and illustrated on **page 104**.

Basically, areas of rescue assistance must be provided whenever there are inaccessible required exit facilities, except for the following:

* Buildings with supervised (i.e., required) sprinkler systems.

* Full building sprinkler coverage is required. Partial systems are not acceptable. (NC DOI, Laurel Wright, 2/4/00)

Institutional Restrained inmate housing areas.

Exterior facilities such as open parking garages.

Exit stairs are considered to be accessible only on the level of discharge, where somebody exiting the building can exit without having to use the stairs themselves.

All other required exits leading into exit stairs (those above and below the level of discharge) are therefore inaccessible by definition and must be provided with areas of rescue assistance.

Areas of rescue assistance generally require one or two floor spaces, minimum size 30 inches by 48 inches, located in a fire-protected smoke-proof environment. **(Paragraph 6.3.2.2)** This could be a vestibule leading to a stair, a landing inside a stair enclosure, or similar space that connects with but doesn't project into the required width of the means of egress. Two spaces are required where exits provide emergency egress calculated at 200 or more people.

Clarification: A recent interpretation by state code officials indicates that the term "smoke-proof enclosure" as used in Volume I-C means only that enclosures must be smoke-tight and doors opening into areas of refuge must be gasketed against the passage of smoke. Compliance with Volume 1, Section 1005.5 is not required. (Letter dated September 27, 1999, from Laurel W. Wright to Cline-Davis Architects.)

* For single tenant interior corridors that are not required to be fire-rated, a vestibule adjacent to a stair and serving as an area of rescue assistance must be fire rated to match the stair enclosure **(Paragraph 6.3.2.2.1(4)).** (NC DOI, Laurel Wright, 2/4/00)

* Where building exits open onto a loading dock served by stairs, ramps may not be required if areas of rescue assistance are located at each stair and are separated from the interior of the building by fire-rated construction. (NC DOI, Laurel Wright, 2/4/00)

The provisions for stairway width **(Paragraph 6.3.2.4)** clarify that handrails are not permitted to encroach on required accessible widths, which must be measured from surface to surface of handrails.

* Minimum width between stair railings is now 48 inches for stairs associated with areas of refuge assistance.

There are additional requirements for signage **(Paragraph 6.3.2.6.1)** and two-way communications **(Paragraph 6.3.2.5).**

* Acceptability of proposed two-way communication systems rests with the fire marshal in the jurisdiction local to the project. NC DOI prefers that two-way

communications devices be commercially produced units specifically designed for use in areas of rescue assistance. (NC DOI, Laurel Wright, 2/4/00)

There are some minor differences between area of rescue assistance requirements for Volume I-C and the ADA itself. These are annotated in the right hand margins of Volume I-C.

Chapter 7 - Doors, Doorways and Door Hardware

This chapter has been reorganized, but like Chapter 5, essentially includes the same requirements as the earlier edition, explained in more detail. The principal change in this chapter has been adding provisions, which conform to ADA regulations. Although the text of this chapter is brief, there are 14 pages of very helpful illustrations.

*** Paragraph 7.2.1.1** maintains the reduction of required door width from 32 to 20 inches at closets and similar reach-in rooms that have a measured distance from the outside wall surface to the point of reach of 21 inches or less.

* The drawing shown on page 7.2.1.1 is misleading! Refer to the side reach illustrations on page 311 instead. (NC DOI, Laurel Wright, 2/4/00)

This paragraph also modifies the minimum leaf requirement for two-leaf doors found in the next paragraph.

This provision has been interpreted as meaning that the minimum single leaf width for a bifolding closet door leaf must be no less than 20 inches. Owing to the geometry of the door and the nature of the hardware being used, this would result in a clear opening of approximately 36 inches, not 20 inches.

Paragraph 7.2.4 limits the distance between a revolving door or turnstile to a required "adjacent" accessible door or gate to a maximum of 20 feet.

Section 7.3 contains revised door clearance information, much of which consists of pointers to applicable illustrations. This section also includes requirements for doors in series, right angle consecutive doors, sliding and folding doors and hospital doors.

Provisions for all-glass doors are added to framed glass doors in Section 7.4.

Paragraph 7.6.3 clarifies that the limitations on pressure required to push a door open do not apply to the force required to operate a door latch or lock.

Section 7.9 contains requirements for door hardware and is largely unchanged except for conformance to ADA regulations. Mounting height for door operating hardware is now restricted to a minimum of 30 inches and a maximum of 48 inches.

Chapter 8 - Stairs and Handrails

This is a brief chapter with few significant changes from the earlier code. Some highlights include:

Monumental or open riser stairs may now be used only when ramps or elevators are provided and visibly located in the vicinity of the stair (Paragraph 8.1.2).

This is a significant change from the earlier code, which permitted monumental or open riser stairs in areas that had other code-compliant stairs.

Where there are no elevators or accessible ramps connecting floor levels in a building, the minimum permitted tread depth exclusive of nosing is 11 inches. (Paragraph 8.2.1).

The undersides of accessible stair nosings must be sloped at 60 degrees from the horizontal instead of 45 degrees (Paragraph 8.2.3.1).

Brick stair nosings may be formed from rounded or ogee-curved bricks (Paragraph 8.2.3.3).

Stair handrail requirements are essentially similar to ramp handrail requirements (Section 8.3).

Surfaces of exterior accessible stairs may slope no more than 1/4 inch per foot (2 percent) (Paragraph 8.4.1).

Chapter 9 - Ground and Floor Surfaces

This is another brief chapter that is essentially similar to provisions of the earlier code.

The common level exception for balconies and bleachers has been deleted.

Requirements for carpets have been added.

Chapter 10 - Protruding Objects

This chapter is essentially derived from the ADA. Important issues include:

Section 10.2.1 requires minimum 80 inches clear headroom in accessible circulation areas.

Where sufficient headroom is not available, **Section 10.2.2** requires that a substantial 27 inch high barrier be installed to guard the lowered area.

Pylon or post supported objects located between 27 inches and 80 inches from the walking surface may overhang their supports up to a maximum of 12 inches. Refer to the illustrations on **pages 157 and 158** for clarification.

Chapter 11 - Toilet Rooms, Plumbing Fixtures, Grab Bars and Accessories.

This is a long complicated chapter with only a few significant changes from the earlier code. One set of changes involves the number and arrangement of required accessible toilet rooms.

Paragraph 11.1.1 basically requires that all public or common toilets be accessible.

Individual private toilet rooms must now be constructed for future accessibility adaptation (Paragraph 11.1.3). This means that items such as blocking and other

reinforcements in walls that may be required to support future handrails and other equipment must be built in at the time of initial building occupancy.

Accessible public toilets in malls and school buildings must be arranged so that no one in the building has to travel more than 200 feet to reach an accessible toilet **(Paragraph 11.2.1)**.

Toilet stall and fixture arrangements are pretty much the same as the earlier code, however, descriptions of acceptable types of stalls have been changed to conform to ADA standards.

One provision that may be unfamiliar is the requirement for a second accessible toilet stall to be provided whenever there are 6 or more stalls in any particular toilet room. This additional stall can be as narrow as 36 inches wide; with length, hardware and clearances as defined in **Paragraph 11.4.3**.

Section 11.6 includes detailed requirements for the design and arrangement of the toilet room fixtures themselves. Some of this is really directed toward the people who manufacture the fixtures, but much of it involves location and installation requirements.

Operating controls such as faucet handles and flush controls must be usable by someone with poor grasping ability. Rule of thumb is that if an able person can operate the control easily with a closed fist, then the control is probably usable by a disabled person.

As previously noted, there is a disagreement in **Paragraph 11.6.1** between Volume I-C and the ADA regarding height of a toilet seat.

For the purposes of Volume I-C, a "lavatory" is not a "sink."

Lavatories are regulated under **Paragraph 11.6.2**.

Sinks are regulated under **Section 11.11**.

Section 11.7 also includes detailed requirements -- this time for toilet accessories. Most should be familiar or even commonplace.

Paragraph 11.7.3 establishes location and height requirements for toilet accessories. It is more detailed than the earlier code, and probably worth reviewing.

Paragraph 11.7.4 establishes requirement for diaper changing tables. This is an addition to the earlier code and is not included in the ADA.

* **Section 11.8** includes general requirements for the design and arrangement of individual toilet rooms, including minimum requirements for places of worship, laundromats, barber and beauty shops, offices, heavy manufacturing facilities, and warehouses. In these facilities, a unisex toilet may be provided to meet the general requirements for toilet rooms, but only when the size of the facility does not exceed 2,500 square feet or less. There are also provisions for unisex toilets in certain classrooms. (Paragraph 11.8.1.2)

Requirements for individual toilet rooms may be different from requirements for toilet stalls of similar size.

* **Section 11.9** includes general requirements for providing additional unisex toilet rooms. One unisex toilet room is required in addition to other required toilet rooms in certain types of facilities, including some highway rest areas, large shopping malls and exhibition

facilities, large auditoriums, stadiums and coliseums, and airport terminals having 20 or more gates.

Section 11.10 includes general requirements for number and arrangement of portable toilets and bathing units.

Other provisions found in Chapter 12 describe physical arrangements of accessible portable toilets and bathing units.

Section 11.11 includes requirements for accessible sinks as differentiated from lavatories, which are covered in **Paragraph 11.6.2**. Where sinks are provided, at least one must be accessible.

Chapter 12 - Bathrooms, Bathing Facilities and Shower Rooms.

This is a complicated chapter consisting mostly of unchanged technical requirements from the earlier edition. Many of its provisions parallel Chapter 11 for toilet rooms, however there are significant changes in the scope of the regulation. Like other portions of the new edition, there are a great many useful illustrations.

A few highlights of the changes:

Like private toilet rooms, private shower rooms must be made adaptable for accessibility. (**Paragraph 12.1.2**). This requirement applies to publicly owned facilities such as police and fire stations as well as privately owned facilities.

The use of shower enclosure doors is governed by **Paragraphs 12.1.3.1** and **12.1.3.2**. If doors are glazed or all-glass, the glass must be tempered and the doors must comply with **Paragraphs 7.4.1** or **7.4.2**.

Paragraph 12.1.5 requires a non-slip finished floor in shower enclosures.

Prefabricated accessible shower enclosures must be certified in writing to comply either with NCSBC Volume I-C, ADAAG, or ANSI A 117.1 - 92.

Minimum depth of side-approach type roll-in showers has been reduced to 30 inches to comply with ADA, (**Paragraph 12.3.1**).

Bathtub seats are now required to be constructed of rot- and corrosion-resistant materials, (**Paragraph 12.4.1.5**).

There are also extensive requirements for bathtub grab bars in **Paragraph 12.4.6**.

Chapter 13 - Drinking Fountains and Water Coolers

This is a brief chapter containing relatively few significant changes.

Remember that accessible drinking fountains and water coolers (DF/WCs) must be located on accessible routes.

If more than one DF/WC is installed on a floor, at least 50 percent of DF/WCs on that floor must be accessible, and distributed throughout the floor. (**Paragraph 13.1.5**).

If only one DF/WC is provided on a floor, it must be of a high/low type. (Paragraph 13.1.6).

Chapter 14 - Telephones

Another chapter mostly derived from the ADAAG, and with few significant changes. The provisions of this chapter apply whenever public-use telephones are provided.

Be sure to read **Paragraphs 14.1.1** and **14.1.3** for requirements governing how many accessible telephones must be provided. As in the case of water coolers, accessible telephones must be located on accessible routes. A specially designed accessibility identification sign must be installed at accessible telephones. See **page 232** for an illustration.

A new definition is introduced in **Chapter 14**: A "bank" of telephones consists of a group of two or more public phones installed adjacent to each other or mounted on the same support unit.

Many of the requirements of this chapter are technical, having to do with the manufacture of telephone units and enclosures. When you design or specify telephone support units and enclosures, make sure they can comply with required access arrangements, including telephone books where provided. (Paragraph 14.2.6).

Paragraph 14.3.1 describes how many text telephones (TDD telephones) must be provided. Don't just skim through this one. There are a lot of contingent provisions and some helpful illustrations.

Paragraph 14.3.3.3 includes requirements for directional signage to guide individuals to the location of TDD telephones. A specially designed TDD identification sign must be installed at TDD telephones. See **page 242** for an illustration.

Chapter 15 - Elevators and Platform Wheelchair Lifts

The big change here is in **Section 15.2 - Buildings Requiring Elevators**. Although similar to the earlier requirements, there are significant differences.

Elevators are required in the following:

Almost every type of publicly owned building that is 2 or more stories in height. There are some exceptions for certain types and arrangements of operations facilities not open to the public, such as drawbridge towers and air traffic control (ATC) towers. ATC towers must be adaptable for future installation of a wheelchair lift.

Almost every type of privately owned building with 2 or more stories, which houses tenants providing services to the public, including shopping centers, shopping malls, medical facilities, transportation terminals and depots.

Professional offices of doctors and other health care providers must be located on an accessible floor (Paragraph 15.2.4). Where such offices are provided on the second floor, either elevator or ramp access must be provided to that floor.

If a 2-story mixed occupancy building contains 5 or more tenants classified as Type M Mercantile occupancy, an elevator is required. Otherwise an elevator is

required only when mercantile facilities are provided on the second floor.
(Paragraph 15.2.5)

Privately owned buildings 3 stories or more in height with at least one story of 3,000 square feet or more, (Paragraph 15.2.8).

There are some subtleties in the application of these requirements. Be sure to look at the illustrations.

* For example, **Paragraph 15.2.10** applies to buildings that are not required to have elevators.

* Even without elevators, all floors above and below the accessible level are still required to be fully accessible on each level, even though they are not required to have an accessible route connecting to those floors.

* When toilet and bathing facilities are provided on any floor level not served by an elevator, accessible facilities must also be provided on the accessible floor.

* Stairs connecting the floors must meet accessibility requirements of **Chapter 8**.

Provisions for size and capacity of elevator cabs (**Section 15.4**) have changed. Capacity is no longer regulated. Elevator cab size is now a function of door-opening arrangement instead of building height.

Section 15.11 contains more elaborate requirements for platform wheelchair lifts than the earlier code. Highlights of this section include:

Limitations on the use of lifts (Paragraph 15.11.1.1).

Lifts must be accessible and operable by the user without assistance (Paragraph 15.11.1.2)

* Be careful! This provision essentially outlaws the use of inclined wheelchair lifts designed to follow stairs or other slopes. Regulations of the NC Department of Labor, Elevator Division require that all inclined lifts must be attendant operated, not user operated. (Confirmed by NC DOI, Laurel Wright, 2/4/00, and by NC DOL, H.E. "Buddy" Godwin, Jr., 2/14/00.)

Other requirements are essentially the same as the earlier code.

Chapter 16 - Controls and Operating Mechanisms, and Automatic Teller Machines

This chapter is greatly expanded from the provisions of the earlier code. However, general requirements, mounting heights and reach requirements, and electrical outlet arrangement are essentially unchanged.

Two important exceptions have been added:

Special equipment not intended for general use by building occupants, such as operating room equipment and lighting.

Special electrical and communications outlets not intended for general use by building occupants, such as receptacles for wall-mounted clocks, refrigerators, and microwave ovens in hotel rooms and break rooms.

One significant addition is a new section, which regulates automatic teller machines (ATMs). All of the requirements appear to be derived from ADA regulations.

Section 16.4 basically requires all ATMs to be accessible, except that where two or more machines are located "at a single location," only one machine at that location must be accessible.

A new definition, "reach depth," is introduced in **Paragraph 16.4.6.2**. The official definition is somewhat difficult to understand. "Reach depth" is probably best understood by looking at the illustrations on **pages 286 and 287**.

Chapter 17 - Alarms

This chapter is completely new and appears to be derived from ADA regulations and Code 72 of the National Fire Protection Association (NFPA).

In brief, this chapter requires visual alarms as well as audible alarms in areas defined as "common use" areas. Refer to **Paragraph 17.1.2** for examples of "common use" areas.

Rooms and spaces used solely as "employee work areas" appear to be exempt from the visual alarm requirements.

Sections 17.2 (audible alarms) and 17.3 (visual alarms) as well as both pages of illustrations are probably of most interest to engineers and manufacturers, rather than architects.

Section 17.4 exempts some publicly and privately owned dwelling units from the visual alarm requirements.

Chapter 18 - Signage

There are many very specific requirements for the design, location and installation of signage in this Chapter! It appears to be principally a combination and reorganization of the earlier Volume I-C provisions with the ADA regulations. There may be some confusion about the definition of a "permanent room" or "permanent space," as used in this chapter.

Important highlights include the following:

Paragraph 18.1.1.1 requires that fire alarm pull stations, fire extinguishers and similar safety devices be identified with accessible signage.

* This is being interpreted to require that when an overhead illuminated exit sign is provided at an exit door, another non-illuminated exit sign complying with Chapter 18 must be installed adjacent to the exit door, and centered at 60 inches above finish floor. (Interpretation confirmed by NC DOI, Laurel Wright, 2/4/00)

Section 18.5 extends this requirement to loading docks, boiler rooms and similar potentially hazardous locations.

Paragraph 18.1.4 establishes sign face surface texture and contrast requirements for accessible signs.

Section 18.2 regulates height and proportion of letters and numbers used on signs, including exterior and interior signs that may be suspended from overhead or projected from the building structure.

Paragraph 18.3.3 restricts the messages used on toilet room signs to either "Men" and "Women" or "Men's Toilet" and "Women's Toilet," and requires the use of gender caricatures. Signs for children's facilities may use "Boy/Girl" terminology instead of "Men/Women" terminology.

Section 18.4 requires that the horizontal centerline of accessible signs be located 60 inches above finished floor or grade.

Section 18.6 exempts building directories and menu signs, and signs which display temporary information.

Chapter 19 - Detectable Warnings

This very brief chapter includes warning surface requirements from the ADA that are presently not being enforced, except for rail system platform edges! Refer to **Paragraph 24.3.9** for rail platform requirements.

Chapter 20 - Storage

The term "storage" in this very brief chapter refers to a variety of different items, including cabinets, shelves, closets, drawers, and clothes rods. Requirements consist mainly of reach and clearance issues derived from ADA regulations. Text information is somewhat sketchy, however the illustrations are helpful.

A couple of highlights:

Paragraph 20.4.1: Accessible door and drawer hardware may not include finger slots, knobs, recessed or flush pull rings, or other similar types.

Section 20.5 exempts customer self-service shelving from earlier forward reach or side reach requirements.

Chapter 21 - Fixed or Built-in Seating and Tables

This is another brief chapter that appears to combine and reorganize provisions of the earlier Volume I-C with ADA regulations. It applies to fixed or built-in seating in a variety of circumstances, ranging from lecture hall seating to built-in hotel lobby seating, and consists primarily of the same clearances found throughout Volume I-C.

Highlight: **Paragraph 21.3.2** requires that the top surfaces of accessible writing tables or counters be no less than 28 inches and no more than 34 inches above the finished floor or ground level.

Chapter 22 - Assembly Seating

Although this section overlaps and includes some of the provisions from the earlier Volume I-C, most of it is derived from ADA regulations.

One principal difference is in the number of seating spaces required to be wheelchair accessible. Under the earlier edition, this amounted to 2 percent for seating up to 200 people, and 1 percent for seating more than 200 people.

The revised requirements are described in a table in **Paragraph 22.1.1** giving numbers of wheelchair spaces, not percentages. Translated, the requirements now range from about 4 percent for seating 50 people, to a little over 1 percent for seating 500 people.

In addition to wheelchair seating spaces, 1 percent of the total number of seats must be located on an aisle and provided with a removable or fold-down armrest for the convenience of people on crutches or using walkers.

Apparently to preserve overall seating capacity, **Paragraph 22.1.3** permits installation of temporary seating units into designated wheelchair seating locations when accessible seats have not yet been sold "on the date of the performance or event."

* **Paragraph 22.1.4** requires that accessible routes be provided from accessible seating areas to areas used by performers and presenters, including stages, arena floors, dressing and locker rooms, orchestra pits, and similar facilities. (NC DOI, Laurel Wright, 2/4/00)

* This requirement also extends to churches and synagogues! According to NC DOI, access must be provided to group use areas, such as raised chancels, dressing rooms, at least one level of choir lofts, and other similar areas. Access is not required for areas intended for single person access, such as organ platforms, baptisteries, and raised pulpits. (NC DOI, Laurel Wright, 2/4/00)

Paragraph 22.1.5 contains unchanged requirements for accessible media/press seating.

Section 22.2 establishes requirements for acceptable locations for wheelchair accessible seating.

When more than 300 seats are provided, accessible seating must be distributed to offer lines of sight and admission prices that are comparable to those available to the general public.

Be careful! This means ALL sightlines must be comparable, which means a person in a wheel chair must be able to see through and around spectators who are standing. Refer to diagrams on **page 323** for an explanation.

Where accessible viewing areas occur in balconies, bleachers, and other places where sightline slopes exceed 5 percent, viewing positions may be "clustered instead of completely distributed." Refer to illustrations on **pages 322 and 324** for clarification.

Accessibility symbol signs must be provided at accessible wheelchair areas and accessible seats (Paragraph 22.1.2.1) and at box offices or room entrances (Paragraph 2.1.2.2).

In areas subject to darkening, the signs must be reflective.

Section 22.3 establishes requirements for clear floor space at wheelchair accessible spaces. Explanatory illustrations are on **page 327**.

Section 22.4 regulates Assistive Listening Systems (ALS), including types and locations. Permanently installed systems are basically required for all assembly areas, except:

Permanent systems are not required in areas with no fixed seating, no sound amplification system, and accommodating fewer than 50 people (Paragraph 22.4.1.1).

Exempted areas must nevertheless be wired for using a portable ALS (Paragraph 22.4.1.2).

Hearing loss accessibility symbol signs must be provided at ALS locations and ticket offices (Paragraph 22.4.3.1.).

Chapter 23 - Restaurants and Cafeterias

This chapter is part of a general elaboration of requirements previously included in Volume I-C, Chapter 7, mostly modified to include ADA requirements.

The requirements for restaurants apply whether or not the restaurant is classified as Assembly or Business occupancy in NCSBC Volume I - General Construction (Paragraph 23.1.1).

Detailed requirements are included for the following:

Proportion of accessible tables to total fixed tables is 5 percent (Paragraph 23.1.2).

Proportion of accessible dining counter space to total spaces is 5 percent (Paragraph 23.1.3).

Location, size and arrangement requirements for:

Accessible counters and bars (**Section 23.2**).

General dining areas (**Section 23.3**). Under these requirements all dining areas must be fully accessible. Raised, depressed or outdoor areas must be connected to the main dining areas with accessible routes.

Food service lines (**Section 23.4**). There must be an aisle of at least 36 inches clear width along each tray slide. Refer to the illustration on **page 336** for clarification.

Serving and dispensing equipment (**Section 23.5**).

Section 23.7 requires that raised platforms such as head table or speaker's platforms must be accessible by ramp or platform lift and that open edges must be guarded by tables or minimum 2 inch high curbs.

Presumably the edge protection requirement could also be met by an appropriately designed guardrail incorporating a lower rail 2 inches above the platform (similar to the ramp railing illustrated on **page 81**), but that option is not explicitly permitted in the text of **Section 23.7**.

Paragraph 23.7.1 states that building code officials have authority only over permanently installed platforms, not temporary ones.

Chapter 24 - Transportation Facilities

This chapter is new, and basically incorporates ADA requirements into Volume I-C.

The requirements of the chapter apply only within the site boundaries of a building or other facility. An illustration on **page 342** clarifies that bus stops, shelters and similar facilities located on public rights of way are not governed by this code.

Detailed location, size, materials, arrangement and slope requirements are included for the following:

Passenger pads (**Paragraph 24.2.2**). Passenger pads are not actually defined, but basically appear to be any paved surface occupied by a passenger waiting for transportation.

Bus shelters, also called passenger shelters (**Paragraph 24.2.3**).

Bus route identification signs (**Paragraph 24.2.4**). Again, these requirements only apply to signage located within the site boundaries of a building or facility.

Most of **Chapter 24** is taken up by extensive requirements for passenger transportation facilities and stations (**Section 24.3**) principally associated with inter-city bus, rail, and other fixed guideway transportation systems.

Most, but not all of the applicable transportation systems are defined in **Paragraph 24.3.1.2**.

This section does not apply to airport facilities.

Much of **Section 24.3** is very specialized, and modifies provisions found elsewhere in Volume I-C. It is probably not worth spending too much time on this section unless necessary for designing a covered facility.

For example, **Paragraph 24.3.3** reduces the number of accessible entrances required by Section 6.2 down to only a single entrance for each separate transportation service. If you find this confusing, take a look at the illustrations on page 350.

Requirements of other paragraphs govern circulation paths, track crossings, elevators, escalators, "direct connections" to commercial/retail/residential facilities (not defined or illustrated, but presumably entrances or corridor connections to these facilities), entrance signs, identification signs, route signs (apparently not wayfinding signs for the facility, but signs providing information about the transportation routes themselves), illumination, fare machines and gates, ticketing areas, baggage areas, platform edges, vehicle/platform clearances and alignments, boarding/debarking areas, public address systems, clocks and text telephones.

The suspension of Chapter 19 provisions for detectable warning surfaces does not apply to transportation platforms (**Paragraph 24.3.9**).

Section 24.4, which governs airport facilities, is considerably less elaborate than **Section 24.3**.

Cross-references to other sections are provided for security doors, entry/exit gates and baggage facilities.

Requirements for text telephones for airport facilities are not the same as for bus and rail facilities.

Chapter 25 - Libraries

This chapter is a minor elaboration of requirements previously included in Volume I-C, Chapter 7, modified to include ADA requirements. Some provisions are now incorporated by reference to similar requirements in other chapters.

Significant additions include requirements for card catalogs (Paragraph 25.3.1), magazine displays (Paragraph 25.3.2), checkout areas (Section 25.4), and traffic control/security gates (Section 25.5).

Low-reach requirements for book shelving (previously 9 inches above the floor) appear to have been deleted.

Chapter 26 - Business and Mercantile

This chapter is also new, and basically incorporates ADA requirements into Volume I-C.

As in the case of restaurants, Volume I-C business/mercantile requirements apply to all areas in which business transactions occur, regardless of whether the occupancy classification of a building is Business, Mercantile, or any other occupancy classification under NCSBC Volume I - General Construction (Paragraph 26.1.1).

Most of the chapter deals with sales and service counters of various types (Section 26.2) and with associated checkout aisles (Section 26.3). Detailed number, location, size, and arrangement requirements are included:

Paragraph 26.3.4 requires a separate accessible entry/exit door for disabled people when principal entrances are guarded by security bollards, railings or other devices arranged to prevent removing a shopping cart from the building premises.

Chapter 27 - Dressing/Fitting Rooms

This is another new chapter, also principally incorporating ADA requirements into Volume I-C.

The section establishes number, location, size, and arrangement requirements for dressing and fitting rooms, including wheelchair maneuvering spaces and clearances, as well as the type and location of benches and mirrors.

According to **Paragraph 27.1.3.1**, every accessible dressing room or fitting room must have a 24 inch wide by 48 inch long bench. Unfortunately the term "dressing room" is not defined, but the requirement presumably would apply to locker rooms where people are dressing and undressing.

Chapter 28 - Medical Care Facilities

This is yet another new chapter incorporating ADA requirements into Volume I-C. This one applies principally to Institutional-Unrestrained medical facilities and state-licensed residential care facilities of various types, including public and common use spaces. This chapter does not apply to health care provider offices, unless they include sleeping rooms for people to stay longer than 24 hours (Paragraph 28.1.3).

The chapter is relatively brief, but contains some important requirements, especially for numbers of required accessible features:

Paragraph 28.1.4.1 establishes the minimum number of accessible parking spaces for outpatient facilities at 10 percent of the total provided.

Paragraph 28.1.4.2 establishes the minimum number of accessible parking spaces for mobility impairment treatment facilities at 20 percent of the total provided.

This requirement also applies to retail stores selling prosthetic and orthotic appliances.

Paragraph 28.2.1 establishes the minimum number of accessible rooms in each type of facility:

General-purpose hospitals, psychiatric, and detoxification facilities - 10 percent.

Long term care facilities, including nursing homes - 50 percent.

Mobility impairment treatment facilities - 100 percent

At least one entrance must be provided with a weather-protected passenger loading zone (**Paragraph 28.3.1**).

Patient exit doors and bedroom entry doors that are 44 inches or more in width are not required to have the standard jamb clearance at the strike edge of the door.

Section 28.5 establishes aisle and maneuvering room requirements for patient rooms. Refer to the illustration on **page 397** for clarification.

Section 28.6 establishes similar requirements for patient toilet rooms. Most of these are pretty much standard for accessible toilets. Review the illustrations on **page 398** for grab-bar requirements at high flush-valve/bed-pan washer fixtures.

Chapter 29 - Transient Lodging

This is a somewhat extensive chapter also incorporating ADA requirements into Volume I-C. Although the title says "transient" housing, the section also applies to some uses previously defined as "non-transient" such as dormitories, and fraternity/sorority houses (Paragraph 29.1.1.2).

Section 29.2 introduces an undefined term called "integration." Essentially, this means that accessible rooms must be distributed throughout the building or building complex. If an elevator is provided, or if there are building entrances and facilities at different levels, vertical distribution is required as well as lateral distribution.

Two accessible rooms may be placed next to each other to share a common partition for efficient utility routing, however, two such pairs of rooms may not be located adjacent to each other (Paragraph 29.2.4).

Section 29.3 requires that accessible rooms also be distributed throughout all the various classes of accommodations offered at a facility. There are several illustrations of varying helpfulness that attempt to clarify these requirements - refer to **pages 400 through 403.**

Among many other things, **Section 29.4** sets requirements for the number of accessible rooms (and roll-in showers) provided for people with mobility impairments.

Depending on the total number of rooms offered, the proportion ranges from 4 percent down to about 2 percent. Check the table in **Paragraph 29.4.1** for specific requirements for rooms and type of showers required.

The internal layout of accessible rooms must be completely accessible, including room layout, floor levels, patios and balconies, doors, telephones, alarm and notification devices, appliances and fixtures (**Paragraphs 29.4.3, and 29.4.4**).

Refer to the illustration on **page 406** for clarification of room layout requirements.

Patio arrangements are illustrated on **page 407**, telephones on **page 412**, and alarm/notification devices on **pages 413 through 415.**

Kitchens, kitchenettes, wet bars and similar amenities in accessible rooms must meet the requirements of **Paragraph 29.4.5.** These requirements are similar to the earlier code, but are much less detailed and specific. Additional requirements are included by reference to other sections.

Additional requirements for accessible bathrooms and showers in transient lodging facilities are included in **Paragraphs 29.4.7.2.**

Section 29.5 includes requirements for rooms modified to serve people with hearing impairments. The numbers of rooms required are shown in a table in **Paragraph 29.5.1.** This number is in addition to the number of rooms required to serve mobility-impaired people.

Normal minimum requirements include accessible doors complying with **Paragraph 29.4.4.2**, volume control telephones and a TDD connection (Paragraph 29.5.2), visual alarm devices (Paragraphs 29.5.3) and visual notification devices (Paragraph 29.5.4).

Paragraph 29.5.5 provides exceptions for substituting portable equipment for volume control telephones and visual notification devices.

Accessibility Requirements for homeless shelters, halfway houses and similar "social service establishments" are codified separately in **Section 29.6.**

Chapter 30 - Multi-Family Dwellings

This is a long, complicated chapter that principally incorporates requirements of the Fair Housing Act into Volume I-C.

It is outside the scope of this study to provide detail about all aspects of Chapter 30. Designers involved with multi-family housing projects should confirm their understandings with the building official in the jurisdiction local to the project.

The description of applicability in Paragraph 30.1.1 may be confusing. It describes applicability to "privately owned multi-family facilities having 4 or more dwellings" and then in a note refers to "privately owned multi-family dwellings having 4 or more units."

State code officials have recently clarified applicability requirements. These clarifications are attached at the end of this report. ("Type of Accessibility Unit Required" table dated October 29, 1999, prepared by Laurel W. Wright.)

The applicable text of the Fair Housing Act itself is included in Part V, Appendix D, of Volume I-C, if you would like to read it. Be aware that the table of contents incorrectly lists the page number as 608 instead of 606.

In addition to general applicability the section also applies to any residence, single-family or otherwise, whether privately or publicly owned, that is provided for a specific employee position such as governor's mansion, university president's house, or building manager's residence. **(Paragraph 30.1.3)**

Two type of accessible dwelling units are defined in the chapter:

Type "A" - "Fully Accessible" dwelling units are governed by **Section 30.5. Units of this type are required for privately owned residential facilities with 11 or more residential units for lease or rent**, located in covered multi-family dwellings.

There are similar provisions for publicly owned housing units **(Paragraph 30.1.2.2).**

Where Type "A" units are required, the number required is 5 percent of the total number of units, or a minimum of 1 unit **(Subparagraph 30.1.2.1.3 [1]).**

Type "B" - "Accessible" dwelling units are governed by **Section 30.4. Units of this type must be provided for all units not required to be Type "A" units.**

For privately owned facilities, there are exceptions for buildings without elevators and subject to unusual site conditions, such as natural slopes exceeding 10 percent, flood plains, and coastal hazard zones **(Paragraph 30.2.8).** Refer to illustrations on pages 434 through 437 for clarification.

To further complicate things, bathrooms in Type "B" units are allowed to be "adaptable."

This means that installation of grab bars may be delayed until immediately before a unit is to be actually occupied by a disabled individual, provided that the walls were originally constructed with proper reinforcement for future installation of the grab bars.

This exception does not apply to common use areas, accessible routes, doors, light switches, electrical outlets, thermostats and similar devices **(Paragraph 30.2.2).**

Although definitions are included in **Section 30.2**, some of the definitions are confusing in themselves.

Perhaps most helpful are the definitions of "adaptable" **(Paragraph 30.2.2)**, "common use areas" **(Paragraph 30.2.3)**, "privately-owned" **(Paragraph 30.2.4.1)**, "publicly-owned" **(Paragraph 30.2.4.2)**, and "ground floor" **(Paragraph 30.2.7).**

Section 30.3 includes requirements for distributing Type A and Type B units throughout the entire residential facility in a manner similar to the distribution requirements for accessible rooms in transient lodging facilities.

Section 30.4 requirements for Type B units are typically less stringent than conventional requirements for typical accessible rooms or suites.

Since the provisions of this section are later incorporated by reference into **Section 30.5**, there are requirements throughout the section that also apply to Type "A" Fully Accessible units.

Other highlights:

Lofts in Type B units are not required to be accessible (Paragraph 30.4.1.2).

Passing space is required in common spaces leading to the residential unit but not within the unit itself (Paragraph 30.4.1.3).

Requirements for parking spaces for both Type A and Type B units are included in Paragraph 30.4.1.4.1.

In a manner similar to bathrooms, parking spaces required for Type "B" units are allowed to be "adaptable." This means that ordinary parking spaces need not be made accessible until actually needed by a disabled resident.

This exception does not apply to spaces required for common use areas, or for Type A units.

If covered parking is provided, a proportional share of accessible parking spaces, including van spaces, must be covered (Paragraph 30.4.1.4.2)

There is a reference table of parking space accessibility requirements in **Paragraph 30.4.1.4.4.**

Elevator requirements in Paragraph 30.4.1.5 are slightly different from the ones in Chapter 15. Some of the implications may be confusing, especially in the case of buildings with an elevated "ground floor." Refer to illustrations on **pages 448 through 449** for clarification.

Means of egress provisions (**Paragraph 30.4.2.2**) require that (with one exception) means of egress must comply with **Section 6.3**, which in turn means that areas of rescue assistance may be required.

The exception has to do with a privately owned residence with inaccessible floors above or below the residential ground floor.

Paragraph 30.4.2.3 allows doors within Type B units to be "usable" instead of "accessible." This difference is not defined in the text, but illustrations on **page 454** suggest that the difference is that an "accessible" door has an actual 32 inch clear opening, and a "usable" door has a 32 inch nominal opening.

Installation of peepholes is subject to the "adaptable" requirement (Paragraph 30.4.2.3.2).

The remainder of **Section 30.4** consists of requirements for accessible kitchens and bathrooms in Type B units (Paragraph 30.4.4). These requirements are generally clear and understandable.

The concept of "usability" is repeated for waterclosets, which may have seats varying in height from 15 inches to 19 inches above finish floor (Paragraph 30.4.4.4.1).

In some cases, maneuvering space is not required in bathrooms, and door swings are allowed to overlap required clear floor areas.

Refer to illustrations on **pages 457 through 460.3** for additional information.

Section 30.5 governs Type "A" - Fully Accessible units. These requirements are basically more stringent modifications to the requirements of Section 30.4.

Unlike **Section 30.4**, this section includes extensive requirements for kitchen layouts, including counters, cabinets, shelves, drawers, appliances, general storage, and even the kitchen sink (Paragraph 30.5.4).

Illustration pages are not as well organized in this section as in others. If you don't see what you need, keep turning pages. The last illustration for kitchen requirements is for dishwashers on **page 460.16.**

Paragraph 30.5.5 governs telephones in Type A units.

Section 30.6 includes requirements for laundry equipment. Laundry illustrations are on **page 460.17.**

Chapter 31 - Courthouses and Courtrooms, Prisons, Jails, Detention Centers, and Legislative/Regulatory Facilities

This chapter primarily includes modifications to ADA requirements for Institutional - Restrained occupancies and other facilities serving legislative and judicial operations.

Although most requirements seem to be compatible with conventional accessibility requirements, designers involved with these facilities should study this chapter for modifications.

For example, **Section 31.3** includes requirements for courthouses, courtrooms, jury boxes, witness stands, bailiff's stations, judges' benches, spectator and press areas, jury areas, holding cells, and a host of other related spaces. Other provisions govern security systems, two-way communications systems, and assistive listening systems.

Among the various requirements is a provision that accessible floor spaces in witness stands and jury boxes be oriented to allow disabled jurors and witnesses to face the courtroom well in the same orientation as other jurors and witnesses.

In **Section 31.4**, which is related to prisons, jails, and similar facilities, compliance with stair requirements (Chapter 8) and elevator requirements (Chapter 15) is not required for multi-story facilities providing inmate housing and common use areas.

This means that areas of rescue assistance are not required in those areas.

Accessible holding and housing cells are required to be distributed throughout the entire facility in a manner similar to the distribution requirements for accessible rooms in transient lodging facilities **(Paragraph 31.4.5.1)**.

Where permanent telephones or audible alarms are installed in inmate cells or rooms of a particular housing category, then 2 percent of these rooms must include volume control telephones and visual alarms **(Paragraph 31.4.5.6)**.

Section 31.5 includes requirements that basically regulate meeting halls used for legislative and regulatory operations. These are similar to the requirements of **Chapter 22**, but include various modifications and limitations.

Chapter 32 - Children's Environments

Chapter 32 is a relatively straight-forward listing of modifications to conventional accessibility requirements to accommodate the generally smaller stature and other needs of children, defined as "persons 12 years of age and younger."

Note: Many jurisdictions will interpret this section as applicable only to schools and other facilities serving grades K through 6.

Highlights include:

* Loading zone modifications include canopy covers and size adjustments for school busses **(Paragraph 32.2.1.2)**. This paragraph is being interpreted as requiring that a canopy must cover the entire loading zone area. (NC DOI, Laurel Wright, 2/4/00)

Interior accessible routes for children are wider than for adults (44 inches instead of 36 inches) as required by **Paragraph 32.2.2**.

Ramps and stair handrails are lowered **(Paragraph 32.2.3)**.

The remainder of the chapter primarily modifies dimensional requirements for toilet rooms, tub or shower facilities, drinking fountains and coolers, telephones, elevators, controls and operating mechanisms, signage, storage, seating and tables, restaurants, cafeterias, and libraries **(Paragraphs 32.2.4 through 32.2.20)**.

PART III: APPENDICES FOR ALTERATIONS

There appears to be a general sense among NC building officials that this portion of Volume I-C is essentially unenforceable as a building code. Notwithstanding this sense, Part III will often be applied by building officials as a guideline for accessibility of proposed alterations to existing buildings.

The reason for the discrepancy is that determination of such issues as "technical infeasibility," "maximum extent feasible," and "disproportionality" (the percentage of project cost committed to barrier removal and the nature of which barriers to remove) generally fall outside the traditional scope of the state's code enforcement system.

* NC DOI is presently taking the position that the "technical infeasibility," "maximum extent feasible," and "disproportionality" issues do apply to all renovation work. (NC DOI, Laurel Wright, 2/4/00) This leaves some significant questions on the table about the nature and extent of any documentation and record keeping that may be required.

* Also uncertain is the point at which the requirements become fixed. For example, if accessibility alterations are budgeted at a required 20 percent of construction cost, but actual bids reduce the value of the barrier removal to 15 percent, is the architect obligated to redesign the accessibility facilities to bring expenditures up to 20 percent? Does every change order increase require additional barrier removal?

If a designer is proposing alterations to any existing building, it is a very good idea to consult with building officials in the jurisdiction local to the project to determine the extent to which their jurisdiction may apply Part III.

* If these alterations are being done on state-owned or state-regulated buildings, designers will probably be required to at least provide budget accounting justification for the scope of barrier removal work designed to be performed.

PART IV: APPENDIX FOR HISTORIC PRESERVATION

This portion of Volume I-C falls into approximately the same circumstance as Part III, however many of the provisions actually amount to relief for historic buildings of accessibility requirements found elsewhere in Volume I-C.

Apparently for this reason, Paragraph 51.4 requires that both the NC Department of Insurance code officials and the State Historic Preservation Officer (SHPO) agree that the building to be altered is properly qualified as a historic building and the requirements of Part IV may be applied.

PART V: EXCERPTS FROM NC GENERAL STATUTES AND AMERICANS WITH DISABILITIES ACT

This portion of Volume I-C consists of excerpts from some of the statutes that support the text of the building code. They are provided as supplemental information and may not be construed as being directly mandatory in any way.

END OF REVIEW

The Fine Print:

This report was prepared as a brief comparison study of new accessibility requirements for NC architects and employees of the Mecklenburg County Engineering & Building Standards Department (E&BS). It is offered to the public as information only. Neither Mecklenburg County E&BS, nor the author, A/E/C Support Services (A/E/C), warrant the application of this report to a particular project, as it is not offered to be a substitute for detailed analysis of either the North Carolina State Building Code, the state and federal Fair Housing Acts, or the Americans with Disabilities Act. It is recommended that users perform an individual analysis of the requirements of those codes as a part of their design process and to formally confirm these requirements with the local authority prior to construction.

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All involved parties have attempted to provide information that is as accurate as reasonably possible for the time and opportunity available. The review has itself been reviewed by experienced code officials, and incorporates their suggestions and revisions. However, readers should be aware that code issues resolved acceptably in one jurisdiction may not always be acceptable in another, and some issues may not yet be fully resolved, even at the state level.

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End of Fine Print